

Bay-breasted warbler

Dendroica castanea

Status

Federal status: G5, N5B, Not listed

NH state status: S4, Not listed

ME state status: S5, Not listed

Breeding Bird Survey data (1980-1994) showed a continent-wide 12.2% decrease. However surveys show that the population increases and decreases depending on outbreaks of spruce budworm. Based on the Partners In Flight program's ranking process, the bay-breasted warbler is on the "highest priority" list for this Bird Conservation Region (BCR). This high conservation priority is due to declining populations locally and range-wide, local and range-wide threats, and a high portion of the population occurring in this BCR. Experts suspect that Forest populations have also declined due to lack of recent budworm outbreaks. This species was not addressed by the bird expert panel, so no outcomes were given.

Distribution

Breeding range is a band from the southwest corner of the Northwest Territories and northeastern British Columbia to southern Manitoba, across much of eastern Canada, and south to northeastern Minnesota, northern New Hampshire, and Maine. Migrates through the United States, Central America, and the Caribbean. Winters in northern South America.

Nesting range barely extends into northeastern Vermont; considered accidental or casual breeder in Vermont.

The New Hampshire breeding bird atlas project documented nesting only in the White Mountains and in northern NH. There are three historic records of apparent breeding south of its normal range in Jaffrey (1979), Squam Lake (1930), Mt. Kearsarge (1936-1940).

WMNF has management responsibility for much of the available habitat in NH, and a small portion of the Maine habitat. WMNF breeding bird surveys showed a mean number of individuals per 15 point transect of 2 in 1997; the mean was less than 1 in 1992-96 and 1998-99.

Habitat

The bay-breasted warbler breeds in boreal forests and mature northern coniferous or mixed forests, especially balsam fir. It uses primarily closed canopy forest, but may use small forest openings or edges adjacent to small clearings, fencerows, highways, bogs or streams. This species is occasionally found in mixed forest adjacent to ponds. Breeds at elevations up to 4,000 ft in coniferous or mixed woods in NH. Bay-breasted warbler forages at mid-height of trees; nests are usually in the lower third of a tree. Not often found in subalpine zone where trees are short and spruce budworm does not typically occur.

Spruce-fir forests with bay-breasted warblers tend to be continuous over vast regions; any patchiness is a result of disturbance such as blowdown, fire, insect damage, timber harvests or variations in topography, not development. Even extensive natural disturbance and timber harvest can reduce habitat suitability. Some studies have shown that bay-breasted warblers are absent from landscapes that are heavily fragmented by clearcutting, agriculture, or development. In Quebec, bay-breasted warblers were not found in landscapes with less than 55% mature forest cover.

Limiting Factors

Bay-breasted warblers appear to need at least 55% mature forest cover at a landscape level. Even moderate-sized blocks of suitable habitat may not be used if they are imbedded in a clearcut-dominated landscape. Shorter forest cutting cycles and conversion of forests to hardwoods or pine have reduced mature spruce-fir breeding habitat for this warbler.

Spraying for spruce budworm has partially controlled spruce budworm outbreaks, possibly reducing bay-breasted warbler populations. The chemicals used in spraying also directly affect the health of individual birds.

Deforestation and subsequent development on its wintering grounds may be negatively impacting this species.

In New Hampshire, the bay-breasted warbler is probably limited most by the availability of mature spruce-fir forest habitat and lack of a recent spruce-budworm outbreak.

Viability concern

Local experts indicated there is a viability concern in New Hampshire due to limited availability of mature spruce-fir forest. The Forest provides a substantial portion of the state's suitable habitat. Therefore experts recommended that this species be addressed in the Forest's viability evaluation since the future of suitable habitat on the Forest could determine the long-term viability of this species at the state level. The species is not considered at risk on the Forest because most of our spruce-fir habitat is currently in a mature condition and expected to remain mature forest based on land allocation. No other species on the list uses mature spruce fir forest and is dependent on spruce-budworm outbreaks for long-term viability, so no surrogate species was available.

Management activities that might affect viability

Clearcutting and other regeneration harvest practices in coniferous forest remove suitable breeding habitat. Having more than 40% of an area in young forest or non-forest conditions may make everything in that area unsuitable. There is nothing to indicate that selection harvest or other activities that create only small openings in the mature forest canopy would make habitat unsuitable.

Harvest or other activities that result in conversion of spruce-fir habitat to other forest types or non-forest conditions remove suitable breeding habitat and could affect viability if they alter a substantial portion of the landscape.

Spruce budworm control reduces prey for this species and could alter warbler population cycles, which could affect long-term viability if populations are held at consistently low levels.

References

Andrews, R. 1994. Bay-breasted Warbler *Dendroica castanea*. Atlas of Breeding Birds in New Hampshire. Pp 280-281.

DeGraaf, R.M.; Yamasaki, M. 2001. New England Wildlife: Habitat, Natural History, and Distribution. University Press of New England, Hanover and London.

Deming, Laura. Audubon Society of New Hampshire. Personal communication with Lesley Rowse, WMNF District biologist in July 2002.

Drolet, B.; Desrochers, A.; Fortin, M.J. 1999. Effects of Landscape Structure on Nesting Songbird Distribution in a Harvested Boreal Forest. *The Condor* 101: 699-704.

Foss, Carol. Audubon Society of New Hampshire. Personal communication with Lesley Rowse, WMNF District biologist in July 2002.

MacFaden, S.W.; Capen, D.E. 2000. White Mountain National Forest Wildlife Monitoring Program: Analysis of Bird Surveys on Permanent Plots, 1992-1999.

Maxson, G.A. 1999. Bay-breasted Warbler *Dendroica castanea*. Statement of Purpose and Reason Draft Data Records. USFS Minnesota and Wisconsin.

Sabo, S.R. 1980. Niche and Habitat relations in subalpine Bird Communities of the White Mountains of New Hampshire. *Ecological Monographs* 50(2): 241-259.

Williams, J. MCI. 1996. Bay-breasted Warbler *Dendroica castanea*. *The Birds of North America* No. 206. Pp 1-20.